

Serial No. 10/824,588
Docket No. H64-169096M/KAS

2

AMENDMENTS TO THE CLAIMS:

Please cancel claims 1, 5, 9, 10, 15, 19 and 20 without prejudice or disclaimer, and amend the claims as follows:

1. (Canceled)
2. (Previously Presented) An ink jet head comprising:
 - a chamber plate comprising a plurality of pressuring chambers formed therein for storing an ink;
 - a vibrating plate bonded to the chamber plate;
 - a housing having an ink flow path through which an ink is supplied into the pressuring chambers;
 - an orifice through which an ink is ejected from the pressuring chambers; and
 - a longitudinal vibration mode piezoelectric element for generating pressure under which an ink droplet is ejected through the orifice,
 - wherein a thickness of the vibrating plate is from 5 μm to 10 μm , and
 - wherein a ratio of the thickness of the vibrating plate to a width of the pressurizing chamber is 0.03 or less.
3. (Currently Amended) The ink jet head as claimed in claim 2 [[1]], wherein the vibrating plate comprises a metal.
4. (Currently Amended) The ink jet head as claimed in claim 2 [[1]], wherein a solution having a viscosity of from 5 mPa·s to 25 mPa·s is ejected.

Serial No. 10/824,588
Docket No. H64-169096M/KAS

3

5. (Canceled)

6. (Previously Presented) An ink jet type droplet ejection device, comprising:

an ink jet head;

an ejection substrate disposed opposed to the ink jet head; and

a mechanism for moving one of the ink jet head and the ejection substrate with respect to the other,

wherein the ink jet head comprises:

a chamber plate comprising a plurality of pressuring chambers formed therein for storing an ink;

a vibrating plate having a thickness of from 5 μm to 10 μm bonded to the chamber plate;

a housing having an ink flow path through which an ink is supplied into the pressuring chambers;

an orifice through which an ink is ejected from the pressuring chambers; and

a longitudinal vibration mode piezoelectric element for generating pressure under which an ink droplet is ejected through the orifice,

wherein a ratio of the thickness of the vibrating plate to a width of the pressurizing chamber is 0.03 or less.

7. (Currently Amended) The ink jet head type droplet ejection device as claimed in claim 23 $[[5]]$, wherein the vibrating plate comprises a metal.

8. (Currently Amended) The ink jet head type droplet ejection device as claimed in claim 23 $[[5]]$, wherein a solution having a viscosity of from 5 mPa·s to 25 mPa·s is ejected.

Serial No. 10/824,588
Docket No. H64-169096M/KAS

4

9. (Canceled)

10. (Canceled)

11. (Currently Amended) The ink jet head as claimed in claim 24 [[10]], wherein the longitudinal vibration mode piezoelectric elements are disposed at an equal interval.

12. (Currently Amended) The ink jet head as claimed in claim 24 [[10]], further comprising:

a piezoelectric element fixing member for connecting the longitudinal vibration mode piezoelectric elements to each other.

13. (Currently Amended) An ink jet head, comprising:

a chamber plate comprising a plurality of pressurizing chambers formed therein for storing an ink;

a vibrating plate bonded to the chamber plate;

a housing having an ink flow path through which an ink is supplied into the pressurizing chambers;

an orifice through which an ink is ejected from the pressurizing chambers;

a longitudinal vibration mode piezoelectric element for generating pressure under which an ink droplet is ejected through the orifice, the longitudinal vibration mode piezoelectric element being connected to a structure other than the chamber plate, wherein a thickness of the vibrating plate is from 5 μ m to 10 μ m; and

Serial No. 10/824,588
Docket No. H64-169096M/KAS

5

signal input terminals disposed on opposing sides of the longitudinal vibration mode piezoelectric element to provide a voltage to the longitudinal vibration mode piezoelectric element.

14. (Currently Amended) The ink jet head as claimed in claim 23 ~~[[1]]~~, further comprising:

an elastic adhesive disposed between the longitudinal vibration mode piezoelectric element and the vibrating plate.

15. (Canceled)

16. (Previously Presented) The ink jet head type droplet ejection device as claimed in claim 6 ~~[[15]]~~, further comprising:

a piezoelectric element fixing member for connecting the longitudinal vibration mode piezoelectric elements to each other.

17. (Currently Amended) The ink jet head as claimed in claim 2 ~~[[1]]~~, wherein a thickness of the vibrating plate is from 7 μm to 10 μm .

18. (Currently Amended) The ink jet head type droplet ejection device as claimed in claim 6 ~~[[15]]~~, wherein a thickness of the vibrating plate is from 7 μm to 10 μm .

19. (Canceled)

20. (Canceled)

Serial No. 10/824,588
Docket No. H64-169096M/KAS

6

21. (Currently Amended) The ink jet head as claimed in claim 2 ~~[[20]]~~, further comprising:

a piezoelectric element fixing member for connecting the longitudinal vibration mode piezoelectric elements.

22. (Currently Amended) The ink jet head as claimed in claim 23 ~~[[20]]~~, wherein a thickness of the vibrating plate is from 7 μm to 10 μm .

23. (Previously Presented) An ink jet head, comprising:

a chamber plate comprising at least one pressurizing chamber formed therein for storing an ink;

a vibrating plate positioned on the chamber plate;

an orifice through which an ink is ejected from the pressurizing chambers; and

a piezoelectric element for generating pressure under which an ink droplet is ejected through the orifice,

wherein a ratio of the thickness of the vibrating plate to a width of the pressurizing chamber is not greater than 0.03.

24. (Previously Presented) The ink jet head as claimed in claim 23, wherein said piezoelectric element comprises a longitudinal vibration mode piezoelectric element.